



**(43) International Publication Date**  
**29 December 2004 (29.12.2004)**

## PCT

**(10) International Publication Number**  
**WO 2004/112585 A3**

**(51) International Patent Classification<sup>7</sup>:** **A61F 2/24**

**(21) International Application Number:**  
PCT/US2004/019814

**(22) International Filing Date:** 21 June 2004 (21.06.2004)

(25) **Filing Language:** English

(26) **Publication Language:** English

**(30) Priority Data:**  
60/480,201 20 June 2003 (20.06.2003) US

(71) **Applicant** (*for all designated States except US*):  
**MEDTRONIC VASCULAR, INC.** [US/US]; 3576  
 Unocal Place, Santa Rosa, CA 95403 (US).

**(72) Inventors; and**

(75) **Inventors/Applicants (for US only): HUYNH, Rany** [US/US]; 125 Chiswock Road, #204, Brighton, MA 02135 (US). **BLOOM, Eliot** [US/US]; 601 Putney Hill Road,

Hopkinton, NH 03229 (US). **LEMMON, Jack, D., Jr.** [US/US]; 1510 Zarthan Avenue, #110, St. Louis Park, MN 55416 (US). **RYAN, Timothy, R.** [US/US]; 8299 Central Avenue NE, MS P 108, Minneapolis, MN 55432 (US).

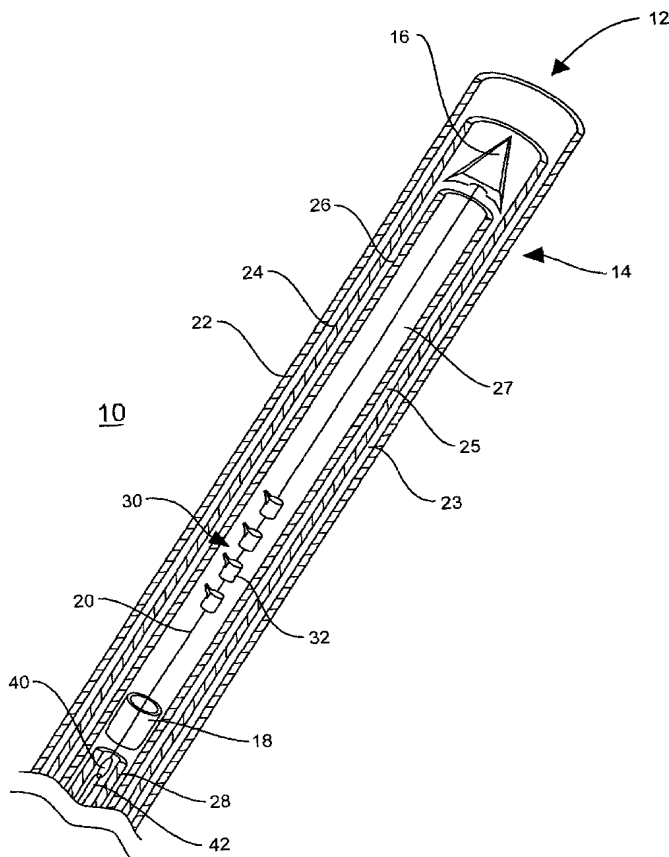
(74) **Agent: NICHOLAS, Frank, C.;** 1603 Orrington Avenue,  
Suite 2000, Evanston, IL 60201 (US).

**(81) Designated States** (*unless otherwise indicated, for every kind of national protection available*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

**(84) Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH,

[Continued on next page]

**(54) Title:** VALVE ANNULUS REDUCTION SYSTEM



**(57) Abstract:** System (10) for treating a dilated heart valve includes a delivery device. Tension device (12) is slidably received within the lumen of delivery device (14) for delivery to and deployment at the treatment area. Delivery device (14) includes a plurality of arranged catheters including an inner catheter (26) within the lumen of an outer catheter (22). Tension device (12) includes a first anchor (16) attached to a second anchor (18).



GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

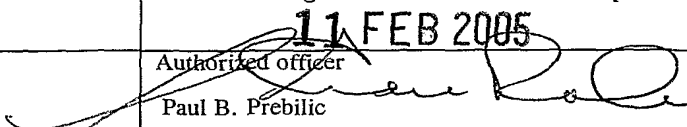
**(88) Date of publication of the international search report:**  
6 May 2005

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/19814

<b>A. CLASSIFICATION OF SUBJECT MATTER</b> IPC(7) : A61F 2/24 US CL : 623/2.11 According to International Patent Classification (IPC) or to both national classification and IPC		
<b>B. FIELDS SEARCHED</b> Minimum documentation searched (classification system followed by classification symbols) U.S. : 623/2.11, 2.36, 2.37  Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched  Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>		
Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2001/0018611 A1 (SOLEM et al) 30 August 2001 (30.08.2001), see Figures 1 to 9 and paragraphs [0043] to [0052].	1-6, 8-12, 15-18, 20, 22-24, 26 ----- 13, 14
X --- Y	US 2002/0183841 A1 (COHN et al) 05 December 2002 (05.12.2002), see Figures 3 to 12 and paragraphs [0048] to [0063].	15-17 and 23-27 ----- 1-4, 6, 8, 13, and 14
A	US 2002/0103532 A1 (LANGBERG et al) 01 August 2002 (01.08.2002).	1-27
A	US 2003/0105520 A1 (ALFERNESS et al) 05 June 2003 (05.06.2003).	1-27
<input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/> See patent family annex.		
* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention	
"E" earlier application or patent published on or after the international filing date	"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone	
"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 16 November 2004 (16.11.2004)		Date of mailing of the international search report <b>11 FEB 2005</b>
Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US Commissioner for Patents P.O. Box 1450 Alexandria, Virginia 22313-1450 Facsimile No. (703) 305-3230		Authorized officer  Paul B. Prebille Telephone No. (703) 308-0858